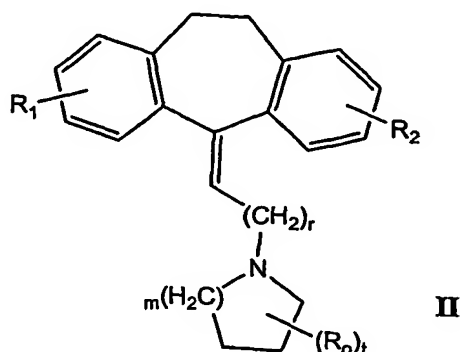


## CLAIMS

What is claimed is:

1. A method of treating a subject for a sleep disorder, comprising administering to a subject in need of treatment for a sleeping disorder an effective amount of a compound represented by structural formula II;

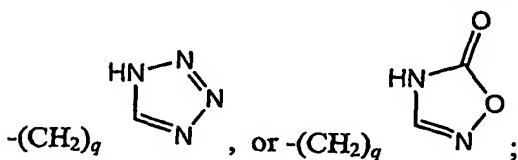


wherein

- $R^1$  and  $R^2$  independently are -H, halogen, hydroxy, -CN, -NO<sub>2</sub>, C<sub>1-6</sub>-alkyl, halogenated C<sub>1-6</sub>-alkyl, C<sub>1-6</sub>-alkoxy, halogenated C<sub>1-6</sub>-alkoxy, -NR<sup>21</sup>R<sup>22</sup>, -(SO<sub>2</sub>)NR<sup>21</sup>R<sup>22</sup>, -NR<sup>21</sup>(SO<sub>2</sub>)NR<sup>22</sup>, -CO-NR<sup>21</sup>R<sup>22</sup>, -NR<sup>21</sup>CO-R<sup>22</sup>, -CO-R<sup>22</sup>, or -CO<sub>2</sub>-R<sup>22</sup>,

$R^{21}$  and  $R^{22}$  independently are -H or C<sub>1-6</sub>-alkyl;

- $R_0$  is C<sub>1-6</sub>-alkyl, halogenated C<sub>1-6</sub>-alkyl, C<sub>1-6</sub>-alkoxy, halogenated C<sub>1-6</sub>-alkoxy, phenyl, phenyl substituted with halogen, hydroxy, nitro or cyano, -(CH<sub>2</sub>)<sub>q</sub>COR<sup>P</sup>, -(CH<sub>2</sub>)<sub>q</sub>CONHSO<sub>2</sub>Aryl, -(CH<sub>2</sub>)<sub>q</sub>CONHSO<sub>2</sub>Heteroaryl, -(CH<sub>2</sub>)<sub>q</sub>CONHS(O)<sub>2</sub>-Alkyl, -(CH<sub>2</sub>)<sub>q</sub>OH, -(CH<sub>2</sub>)<sub>q</sub>SO<sub>2</sub>R<sup>P</sup>, -(CH<sub>2</sub>)<sub>q</sub>S(O)<sub>2</sub>NHCO-alkyl, -(CH<sub>2</sub>)<sub>q</sub>S(O)<sub>2</sub>NHCO-aryl, -(CH<sub>2</sub>)<sub>q</sub>S(O)NHCO-alkyl, -(CH<sub>2</sub>)<sub>q</sub>S(O)NHCO-aryl, -(CH<sub>2</sub>)<sub>q</sub>P(O)(OH)<sub>2</sub>, -(CH<sub>2</sub>)<sub>q</sub>P(O)OH,



wherein  $q$  is 0, 1 or 2;

$R^P$  is H, OH or C<sub>1-8</sub> alkyl,

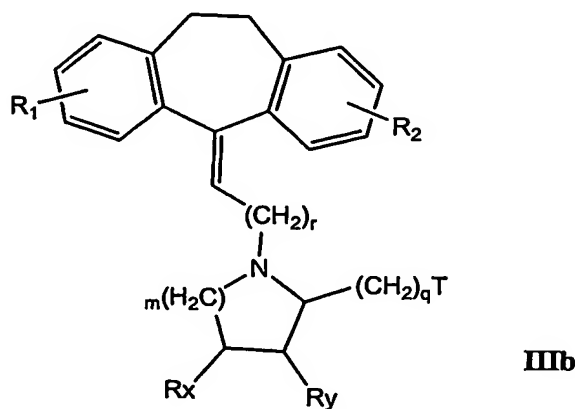
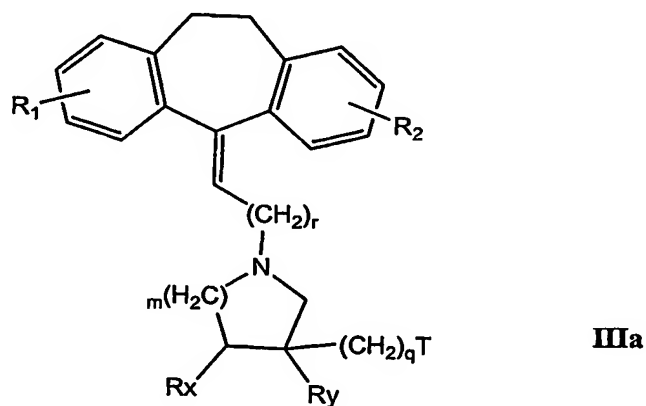
$r$  is 1, 2, 3 or 4;

$m$  is 1 or 2, and

$t$  is 1, 2, or 3; or a pharmaceutically acceptable salt, solvate, or hydrate thereof.

2. The method of Claim 1 wherein the subject is a human.

3. The method of Claim 1, wherein the subject is treated for a circadian rhythm adjustment disorder.
4. The method of Claim 1, wherein the subject is treated for a sleep disorder selected from sleep apnea, somnambulism, night terrors, restless leg syndrome, sleep onset insomnia, and sleep maintenance insomnia.
5. The method of Claim 4 wherein the subject is treated for sleep onset insomnia or sleep maintenance insomnia.
6. A method of treating a subject for a sleep disorder, comprising administering to a subject in need of treatment for a sleeping disorder an effective amount of a compound represented by structural formula **IIIa** or **IIIb**:



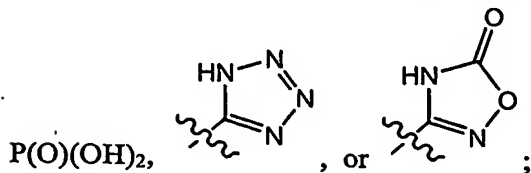
wherein

$R^1$  and  $R^2$  independently are -H, halogen, hydroxy, -CN, -NO<sub>2</sub>, C<sub>1-6</sub>-alkyl, halogenated C<sub>1-6</sub>-alkyl, C<sub>1-6</sub>-alkoxy, halogenated C<sub>1-6</sub>-alkoxy, -NR<sup>21</sup>R<sup>22</sup>, -(SO<sub>2</sub>)NR<sup>21</sup>R<sup>22</sup>, -NR<sup>21</sup>(SO<sub>2</sub>)NR<sup>22</sup>,

$-(\text{CO})\text{NR}^{21}\text{R}^{22}$ ,  $-\text{NR}^{21}(\text{CO})\text{R}^{22}$ ,  $-(\text{CO})\text{R}^{22}$ , or  $-(\text{CO}_2)\text{R}^{22}$ , and  $\text{R}^{21}$  and  $\text{R}^{22}$  independently are  $-\text{H}$  or  $\text{C}_{1-6}$ -alkyl;

$\text{R}_x$  and  $\text{R}_y$  are, independently, hydrogen,  $\text{C}_{1-6}$ -alkyl, halogenated  $\text{C}_{1-6}$ -alkyl,  $\text{C}_{1-6}$ -alkoxy, halogenated  $\text{C}_{1-6}$ -alkoxy, or, taken together,  $\text{R}_x$  and  $\text{R}_y$  form a bond;

- 5      $\text{T}$  is  $\text{COOH}$ ,  $\text{COOR}^a$ ,  $\text{CONHSO}_2\text{Aryl}$ ,  $\text{CONHSO}_2\text{Heteroaryl}$ ,  $\text{CONHS}(\text{O})_2\text{Alkyl}$ ,  $\text{SO}_3\text{H}$ ,  $\text{S}(\text{O})_2\text{NHCOAlkyl}$ ,  $\text{S}(\text{O})_2\text{NHCOAryl}$ ,  $\text{S}(\text{O})\text{NHCOAlkyl}$ ,  $(\text{O})\text{NHCO-Aryl}$ ,



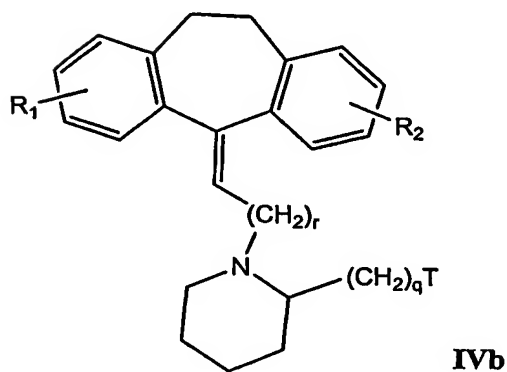
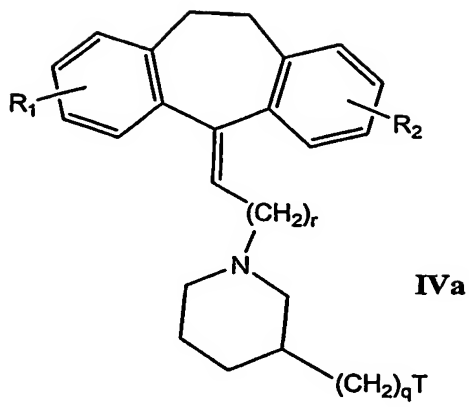
$\text{R}^a$  is  $\text{C}_1\text{-C}_6$  alkyl;

$q$  is 0, 1 or 2;

- 10      $r$  is 1, 2, 3 or 4; and

$m$  is 1 or 2; or a pharmaceutically acceptable salt, solvate, or hydrate thereof.

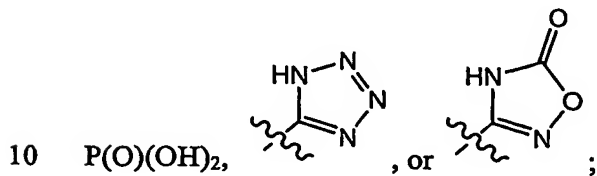
7. The method of Claim 6 wherein the subject is a human.
- 15     8. The method of Claim 6, wherein the subject is treated for a circadian rhythm adjustment disorder.
9. The method of Claim 6, wherein the subject is treated for a sleep disorder selected from sleep apnea, somnambulism, night terrors, restless leg syndrome, sleep onset insomnia, and sleep maintenance insomnia.
- 20     10. The method of Claim 9 wherein the subject is treated for sleep onset insomnia or sleep maintenance insomnia.
- 25     11. A method of treating a subject for a sleep disorder, comprising administering to a subject in need of treatment for a sleeping disorder an effective amount of a compound represented by structural formula IVa or IVb:



wherein

$R^1$  and  $R^2$  independently are -H, halogen, hydroxy, -CN, -NO<sub>2</sub>, C<sub>1-6</sub>-alkyl, halogenated C<sub>1-6</sub>-alkyl, C<sub>1-6</sub>-alkoxy, halogenated C<sub>1-6</sub>-alkoxy, -NR<sup>21</sup>R<sup>22</sup>, -(SO<sub>2</sub>)NR<sup>21</sup>R<sup>22</sup>, -NR<sup>21</sup>(SO<sub>2</sub>)NR<sup>22</sup>, -(CO)NR<sup>21</sup>R<sup>22</sup>, -NR<sup>21</sup>(CO)R<sup>22</sup>, -(CO)R<sup>22</sup>, or -(CO<sub>2</sub>)R<sup>22</sup>, and R<sup>21</sup> and R<sup>22</sup> independently are -H or C<sub>1-6</sub>-alkyl;

T is COOH, COOR<sup>a</sup>, CONHSO<sub>2</sub>Aryl, CONHSO<sub>2</sub>Heteroaryl, CONHS(O)<sub>2</sub>Alkyl, SO<sub>3</sub>H, S(O)<sub>2</sub>NHCOAlkyl, S(O)<sub>2</sub>NHCOAryl, S(O)NHCOAlkyl, S(O)NHCO-Aryl,



R<sup>a</sup> is C<sub>1</sub>-C<sub>6</sub> alkyl;

q is 0, 1 or 2; and

r is 1, 2, 3 or 4; or a pharmaceutically acceptable salt, solvate, or hydrate thereof.

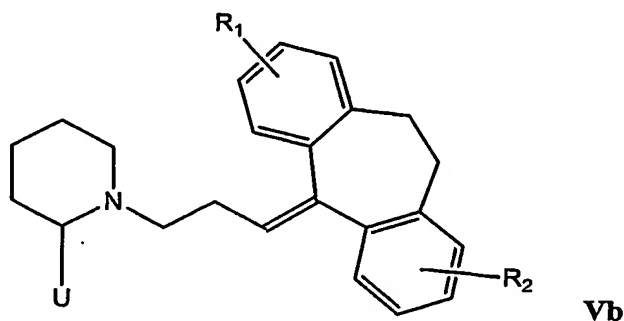
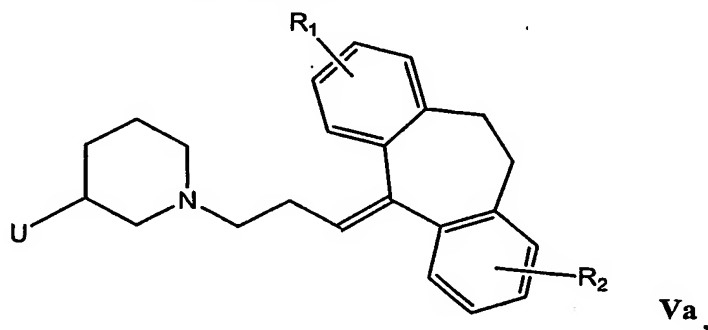
15 12. The method of Claim 11 wherein the subject is a human.

13. The method of Claim 11, wherein the subject is treated for a circadian rhythm adjustment disorder.

14. The method of Claim 11, wherein the subject is treated for a sleep disorder selected from sleep apnea, somnambulism, night terrors, restless leg syndrome, sleep onset insomnia, and sleep maintenance insomnia.

15. The method of Claim 14 wherein the subject is treated for sleep onset insomnia or sleep maintenance insomnia.

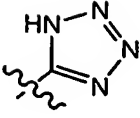
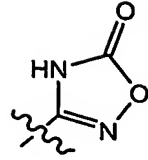
16. A method of treating a subject for a sleep disorder, comprising administering to a subject in need of treatment for a sleeping disorder an effective amount of a compound represented by structural formula Va or Vb:



wherein

$R^1$  and  $R^2$  independently are -H, halogen, hydroxy, -CN, -NO<sub>2</sub>, or C<sub>1-6</sub>-alkyl, halogenated C<sub>1-6</sub>-alkyl, C<sub>1-6</sub>-alkoxy, halogenated C<sub>1-6</sub>-alkoxy, -NR<sup>21</sup>R<sup>22</sup>, -(SO<sub>2</sub>)NR<sup>21</sup>R<sup>22</sup>, -NR<sup>21</sup>(SO<sub>2</sub>)NR<sup>22</sup>, -(CO)NR<sup>21</sup>R<sup>22</sup>, -NR<sup>21</sup>(CO)R<sup>22</sup>, -(CO)R<sup>22</sup>, or -(CO<sub>2</sub>)R<sup>22</sup>,  $R^{21}$  and  $R^{22}$  independently are -H or C<sub>1-6</sub>-alkyl;

$R^a$  is C<sub>1</sub>-C<sub>6</sub> alkyl; and

U is COOH, COOR<sup>a</sup>, CONHSO<sub>2</sub>Aryl, , or  ;  
or a pharmaceutically acceptable salt, solvate, or hydrate thereof.

17. The method of Claim 16 wherein the subject is a human.

18. The method of Claim 16, wherein the subject is treated for a circadian rhythm adjustment disorder.

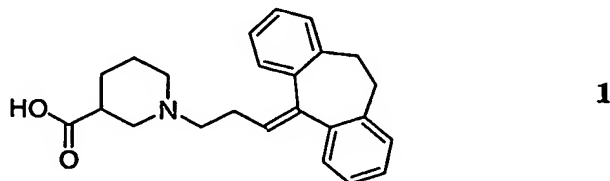
19. The method of Claim 16, wherein the subject is treated for a sleep disorder selected from sleep apnea, somnambulism, night terrors, restless leg syndrome, sleep onset insomnia, and sleep maintenance insomnia.

20. The method of Claim 19 wherein the subject is treated for sleep onset insomnia or sleep maintenance insomnia.

21. The method of Claim 1, 6, 11, or 16 wherein R<sup>1</sup> and R<sup>2</sup> independently are -H, halogen, hydroxy, C<sub>1-6</sub>-alkyl or C<sub>1-6</sub>-alkoxy.

22. The method of Claim 1, 6, 11, or 16, wherein R<sup>1</sup> and R<sup>2</sup> independently are -H or halogen.

23. A method of treating a subject for insomnia, comprising administering to a subject in need of treatment for insomnia an effective amount of a compound **1**:



or a pharmaceutically acceptable salt, solvate, or hydrate thereof.

24. The method of Claim 23, wherein the compound is the *R* isomer of compound **1**.

25. The method of Claim 23, wherein the compound is the *S* isomer of compound 1.